HVAC DESIGNS LTD.

375 Finley Ave. Suite 202 Ajax, ON L1S 2E2
Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

SITE NAME: RUSSELL GARDENS PH 6 — DATE: Mar-21 — WINTER NATURAL AIR CHANGE RATE 0.338 — HEAT LOSS AT F. 71 — CSA-F280-12
BUILDER: GREENPARK HOMES — TYPE: VALLEYCREEK 2 — GFA: 2612 — LO# 90134 — SUMMER NATURAL AIR CHANGE RATE 0.121 — HEAT GAIN AT F. 13 — SB-12 PACKAGE A1

ROOM USE			MBR			ENS			WIC			BED-2			BED-3			BED-4			BATH						ENS-2					
EXP. WALL			37			23			8			29			32			15			9						9					
CLG. HT.			9			9			9			9			9			9			9						9					
	FACTORS																															
GRS. WALL AREA	LOSS	GAIN	333			207			72			261			288			135			81						81					
GLAZING			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN					LOSS	GAIN				
NORTH	19.8	16.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					7	138	112			
EAST	19.8	41.6	0	0	0	0	0	0	17	336	706	26	514	1080	49	969	2036	0	0	0	0	0					0	0	0			
SOUTH	19.8	24.9	0	0	0	8	158	199	0	0	0	0	0	0	0	0	0	15	297	373	8	158	199				0	0	0			
WEST	19.8	41.6	35	692	1454	15	297	623	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0			
SKYLT.	34.6	101.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0			
DOORS	23.5	4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0			
NET EXPOSED WALL	4.1	0.8	298	1235	224	184	763	138	55	228	41	235	974	177	239	991	180	120	497	90	73	303	55				74	307	56			
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0			
EXPOSED CLG	1.2	0.6	358	427	210	129	154	76	29	35	17	274	327	161	185	221	109	242	289	142	128	153	75				112	134	66			
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0			
EXPOSED FLOOR	2.4	0.4	0	0	0	0	0	0	29	69	12	274	649	118	17	40	7	0	0	0	11	26	5				0	0	0			
BASEMENT/CRAWL HEAT LOSS				0			0			0			0			0			0			0					0					
SLAB ON GRADE HEAT LOSS				0			0			0			0			0			0			0					0					
SUBTOTAL HT LOSS				2354			1371			667			2464			2220			1082			639					579					
SUBTOTAL HT GAIN					1889			1037			777			1536			2332			606			334					233				
LEVEL FACTOR MULTIPLIER			0.20	0.25		0.20	0.25		0.20	0.25		0.20	0.25		0.20	0.25		0.20	0.25		0.20	0.25					0.20	0.25				
AIR CHANGE HEAT LOSS				596			347			169			624			562			274			162					146					
AIR CHANGE HEAT GAIN					144			79			59			117			178			46			25					18				
DUCT LOSS				0			0			84			309			278			0			80					0					
DUCT GAIN					0			0			84			242			328			0			36					0				
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240	1		240	0		0				0					
HEAT GAIN APPLIANCES/LIGHTS					529			0			0			529			529			529			0					0				
TOTAL HT LOSS BTU/H				2950			1718			920			3396			3060			1356			881					725					
TOTAL HT GAIN X1.3 BTU/H					3954			1450			1196			3463			4688			1847			514					326				

ROOM USE			FAM			DIN			K/D				LAUND			W/R			FOY							WOD			BAS		
EXP. WALL			36			26			35				27			6			35							43			166		
CLG. HT.			10			10			10				10			10			11							8			8		
	FACTORS																															
GRS. WALL AREA	LOSS	GAIN	360			260			350				270			60			385							344			959		
GLAZING			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN						LOSS	GAIN		LOSS	GAIN	
NORTH	19.8	16.0	0	0	0	0	0	0	0	0	0		7	138	112	0	0	0	0	0	0					0	0	0	0	0	0
EAST	19.8	41.6	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0					0	0	0	0	0	0
SOUTH	19.8	24.9	0	0	0	27	534	672	0	0	0		0	0	0	7	138	174	0	0	0					0	0	0	4	79	100
WEST	19.8	41.6	30	593	1247	0	0	0	63	1245	2618		0	0	0	0	0	0	0	0	0					8	158	332	0	0	0
SKYLT.	34.6	101.5	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0					0	0	0	0	0	0
DOORS	23.5	4.3	0	0	0	0	0	0	0	0	0		20	469	85	0	0	0	45	1055	191					0	0	0	20	469	85
NET EXPOSED WALL	4.1	0.8	330	1368	248	233	966	175	287	1190	216		243	1007	183	53	220	40	340	1410	256					0	0	0	0	0	0
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0					250	836	152	369	1233	224
EXPOSED CLG	1.2	0.6	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0					0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0					0	0	0	0	0	0
EXPOSED FLOOR	2.4	0.4	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0					0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS				0			0			0				0			0			0									5471	
SLAB ON GRADE HEAT LOSS				0			0			0				0			0			0						0					
SUBTOTAL HT LOSS				1961			1500			2435				1615			358			2465						994			7252		
SUBTOTAL HT GAIN					1495			847			2833				380			214			447							484			408	
LEVEL FACTOR MULTIPLIER			0.30	0.42		0.30	0.42		0.30	0.42			0.30	0.42		0.30	0.42		0.30	0.42									0.50	0.87	
AIR CHANGE HEAT LOSS				820			627			1018				675			150			1030									7198		
AIR CHANGE HEAT GAIN					114			65			216				29			16			34										68	
DUCT LOSS				0			0			0				0			0			0									0		
DUCT GAIN					0			0			0				0			0			0										0	
HEAT GAIN PEOPLE	240		0		0	0		0	0		0		0		0	0		0	0		0					0		0	0		0
HEAT GAIN APPLIANCES/LIGHTS					529			529			529				529			0			0							0			529
TOTAL HT LOSS BTU/H				2781			2126			3453				2290			508			3495						994			14450		
TOTAL HT GAIN X1.3 BTU/H					2779			1873			4652				1219			300			625							629			1307	

TOTAL HEAT GAIN BTU/H: 31098 — TONS: 2.59 — LOSS DUE TO VENTILATION LOAD BTU/H: 1515 — STRUCTURAL HEAT LOSS: 45104 — TOTAL COMBINED HEAT LOSS BTU/H: 46619

REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN OTHER DESIGNER UNDER DIVISION C, 3.2.5.1 OF THE BUILDING CODE.

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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SITE NAME: RUSSELL GARDENS PH 4
BUILDER: GREENPARK HOMES

TYPE: VALLEYCREEK 2 DATE: Mar-21 GFA: 2612 LO# 90134

HEATING CFM	928	COOLING CFM	928	furnace pressure	0.6	
TOTAL HEAT LOSS	45,104	TOTAL HEAT GAIN	30,823	furnace filter	0.05	
AIR FLOW RATE CFM	20.57	AIR FLOW RATE CFM	30.11	a/c coil pressure	0.2	
				available pressure for s/a & r/a	0.35	
				plenum pressure s/a	0.18	r/a pressure 0.17
				max s/a dif press. loss	0.02	r/a grille press. Loss 0.02
				min adjusted pressure s/a	0.16	adjusted pressure r/a 0.15

#GOODMAN
GMEC960603BNA 60
FAN SPEED
LOW
MEDLOW
MEDIUM 928
MEDIUM HIGH 1017
HIGH 1131

AFUE = 96 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 57,600

DESIGN CFM = 928
CFM @ .8 " E.S.P.

TEMPERATURE RISE 57 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	11	7	4
R/A	0	0	3	2	1

All S/A diffusers 4"x10" unless noted otherwise on layout.
All S/A runs 5"Ø unless noted otherwise on layout.

RUN #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	17	18	19	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	BED-2	BED-3	MBR	ENS-2	FAM	DIN	K/D	K/D	LAUND	W/R	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.47	1.72	0.92	1.70	1.53	1.36	0.88	1.70	1.53	1.47	0.73	2.78	2.13	1.73	1.73	2.29	0.51	3.50	3.86	3.86	3.86	3.86
CFM PER RUN HEAT	30	35	19	35	31	28	18	35	31	30	15	57	44	36	36	47	10	72	79	79	79	79
RM GAIN MBH.	1.98	1.45	1.20	1.73	2.34	1.85	0.51	1.73	2.34	1.98	0.33	2.78	1.87	2.33	2.33	1.22	0.30	0.63	0.48	0.48	0.48	0.48
CFM PER RUN COOLING	60	44	36	52	71	56	15	52	71	60	10	84	56	70	70	37	9	19	15	15	15	15
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	47	29	45	55	54	19	36	49	61	38	48	31	34	39	28	29	32	36	30	32	29	39
EQUIVALENT LENGTH	140	150	130	150	150	120	160	140	150	140	180	120	100	140	120	120	160	100	110	140	150	130
TOTAL EFFECTIVE LENGTH	187	179	175	205	204	139	196	189	211	178	228	151	134	179	148	149	192	136	140	172	179	169
ADJUSTED PRESSURE	0.09	0.1	0.1	0.08	0.08	0.12	0.09	0.09	0.08	0.1	0.08	0.11	0.13	0.1	0.12	0.12	0.09	0.13	0.12	0.1	0.1	0.1
ROUND DUCT SIZE	5	4	4	5	6	6	4	5	6	5	4	6	5	5	5	4	4	5	5	5	5	5
HEATING VELOCITY (ft/min)	220	402	218	257	158	143	207	257	158	220	172	291	323	264	264	539	115	529	580	580	580	580
COOLING VELOCITY (ft/min)	441	505	413	382	362	286	172	382	362	441	115	428	411	514	514	424	103	140	110	110	110	110
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	D	C	B	B	A	C	B	B	A	D	B	C	B	D	D	C	A		C	D	A	A

RUN #	
ROOM NAME	
RM LOSS MBH.	
CFM PER RUN HEAT	
RM GAIN MBH.	
CFM PER RUN COOLING	
ADJUSTED PRESSURE	
ACTUAL DUCT LGH.	
EQUIVALENT LENGTH	
TOTAL EFFECTIVE LENGTH	
ADJUSTED PRESSURE	
ROUND DUCT SIZE	
HEATING VELOCITY (ft/min)	
COOLING VELOCITY (ft/min)	
OUTLET GRILL SIZE	
TRUNK	

CITY OF HAMILTON
Building Division
Permit No. 20-187784-02
THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE
THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW
These drawings and/or specifications have been reviewed by
Mar 2021
FOR CHIEF BUILDING OFFICIAL
DATE

SUPPLY AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)		TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
TRUNK A	302	0.08	9	10	x	8	544	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	468	0.08	10.6	14	x	8	602	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	246	0.10	7.8	8	x	8	554	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	211	0.09	7.6	8	x	8	475	TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	457	0.09	10.2	12	x	8	686	TRUNK K	0	0.00	0	0	x	8	0
TRUNK F	0	0.00	0	0	x	8	0	TRUNK L	0	0.00	0	0	x	8	0

RETURN AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
TRUNK O	0	0.06	0	0	x	8	0
TRUNK P	0	0.06	0	0	x	8	0
TRUNK Q	0	0.06	0	0	x	8	0
TRUNK R	0	0.06	0	0	x	8	0
TRUNK S	0	0.06	0	0	x	8	0
TRUNK T	0	0.06	0	0	x	8	0
TRUNK U	0	0.06	0	0	x	8	0
TRUNK V	0	0.06	0	0	x	8	0
TRUNK W	0	0.06	0	0	x	8	0
TRUNK X	618	0.06	12.6	18	x	8	618
TRUNK Y	310	0.06	9.7	12	x	8	465
TRUNK Z	0	0.06	0	0	x	8	0
DROP	928	0.06	14.7	24	x	10	557

RETURN AIR #	1	2	3	4	5												BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	155	125	155	155	200	0	0	0	0	0	0	0	0	0	0	0	138
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	56	53	54	44	13	1	1	1	1	1	1	1	1	1	1	1	15
EQUIVALENT LENGTH	185	175	180	190	135	0	0	0	0	0	0	0	0	0	0	0	145
TOTAL EFFECTIVE LH	241	228	234	234	148	1	1	1	1	1	1	1	1	1	1	1	160
ADJUSTED PRESSURE	0.06	0.06	0.06	0.06	0.10	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.09
ROUND DUCT SIZE	7.5	6.9	7.5	7.5	7.3	0	0	0	0	0	0	0	0	0	0	0	6.5
INLET GRILL SIZE	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	8
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	14	0	0	0	0	0	0	0	0	0	0	0	14

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM A QUALIFIED PERSON IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5.1 OF THE BUILDING CODE.

Michael O'Rourke
INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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TYPE: VALLEYCREEK 2 LO # 90134
SITE NAME: RUSSELL GARDENS PH 4

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES — 9.32.3.1(1)

- a) [✓] Direct vent (sealed combustion) only
- b) [ ] Positive venting induced draft (except fireplaces)
- c) [ ] Natural draft, B-vent or induced draft gas fireplace
- d) [ ] Solid Fuel (including fireplaces)
- e) [ ] No Combustion Appliances

HEATING SYSTEM

[✓] Forced Air [ ] Non Forced Air

[ ] Electric Space Heat

HOUSE TYPE — 9.32.1(2)

[✓]	I	Type a) or b) appliance only, no solid fuel
[ ]	II	Type I except with solid fuel (including fireplaces)
[ ]	III	Any Type c) appliance
[ ]	IV	Type I, or II with electric space heat
[ ]		Other: Type I, II or IV no forced air

SYSTEM DESIGN OPTIONS — O.N.H.W.P.

[0]	1	Exhaust only/Forced Air System
[ ]	2	HRV with Ducting/Forced Air System
[✓]	3	HRV Simplified/connected to forced air system
[ ]	4	HRV with Ducting/non forced air system
[ ]		Part 6 Design

TOTAL VENTILATION CAPACITY — 9.32.3.3(1)

Basement + Master Bedroom	2	@ 21.2 cfm	42.4	cfm
Other Bedrooms	3	@ 10.6 cfm	31.8	cfm
Kitchen & Bathrooms	5	@ 10.6 cfm	53	cfm
Other Rooms	4	@ 10.6 cfm	42.4	cfm
Table 9.32.3.A.		TOTAL	169.6	cfm

PRINCIPAL VENTILATION CAPACITY REQUIRED — 9.32.3.4.(1)

1	Bedroom	31.8	cfm
2	Bedroom	47.7	cfm
3	Bedroom	63.6	cfm
4	Bedroom	79.5	cfm
5	Bedroom	95.4	cfm
	TOTAL	79.5	cfm

SUPPLEMENTAL VENTILATION CAPACITY — 9.32.3.5.

Total Ventilation Capacity	169.6	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	90.1	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE V150H Location: BSMT

79.5 cfm 3.0 sones [✓] HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

CFM		ΔT °F		FACTOR		% LOSS
79.5 CFM	X	71°F	X	1.08	X	0.25

SUPPLEMENTAL FANS

PANASONIC

Location	Model	cfm	HVI	Sones
ENS	FV-05-11VK1	50	✓	0.3
BATH	FV-05-11VK1	50	✓	0.3
ENS-2	FV-05-11VK1	50	✓	0.3
W/R	FV-05-11VK1	50	✓	0.3

HEAT RECOVERY VENTILATOR — 9.32.3.11.

Model: VANEE V150H

150 cfm high 35 cfm low

75 % Sensible Efficiency @ 32 deg F (0 deg C) [✓] HVI Approved

LOCATION OF INSTALLATION

Lot: Concession

Township Plan:

Address

Roll # Building Permit #

BUILDER: GREENPARK HOMES

Name:

Address:

City:

Telephone #: Fax #:

INSTALLING CONTRACTOR

Name:

Address:

City:

Telephone #: Fax #:

DESIGNER CERTIFICATION

I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.

Name: HVAC Designs Ltd.

Signature: Michael O'Rourke

HRAI # 001820

Date: March-21

I REVIEW AND TAKE RESPONIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

INDIVIDUAL BCIN: 19669 Michael O'Rourke MICHAEL O'ROURKE

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CSA F280-12 Residential Heat Loss and Heat Gain Calculations

Formula Sheet (For Air Leakage / Ventilation Calculation)

LO#: 90134 Model: VALLEYCREEK2 Builder: GREENPARK HOMES Date: 31/03/2021

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1158	8	9264
First	1158	10	11580
Second	1432	9	12888
Third	0	9	0
Fourth	0	9	0
		Total:	33,732.0 ft³
		Total:	955.2 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.338
SUMMER NATURAL AIR CHANGE RATE	0.121

Design Temperature Difference

	Tin °C	Tout °C	ΔT °C	ΔT °F
Winter DTDh	22	-17	39	71
Summer DTDc	24	31	7	13

5.2.3.1 Heat Loss Due to Air Leakage

$$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$$

0.338 x 265.33 x 39 °C x 1.2 = 4219 W

= 14395 Btu/h

6.2.6 Sensible Gain Due to Air Leakage

$$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$$

= 0.121 x 265.33 x 7 °C x 1.2 = 274 W

= 935 Btu/h

5.2.3.2 Heat Loss Due to Mechanical Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

80 CFM x 71 °F x 1.08 x 0.25 = 1515 Btu/h

6.2.7 Sensible Heat Gain Due to Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

80 CFM x 13 °F x 1.08 x 0.25 = 275 Btu/h

5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)

$$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$$

Level	Level Factor (LF)	HLairvel Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL$_{clevel}$)	Air Leakage Heat Loss Multiplier (LF) HLairbv / (HLlevel)
1	0.5	14,395	8,246	0.873
2	0.3		10,334	0.418
3	0.2		11,378	0.253
4	0		0	0.000
5	0		0	0.000

*HLairbv = Air leakage heat loss + ventilation heat loss

*For balanced or supply only ventilation system HLairvel = 0

HVAC DESIGNS LTD.

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Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: VALLEYCREEK2 **BUILDER:** GREENPARK HOMES
SFQT: 2612 **LO#** 90134 **SITE:** RUSSELL GARDENS PH4

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	1	OUTDOOR DESIGN TEMP.	88
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.57	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft^3):	33732.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD ($Btu/h/ft^2$):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	5.0 ft
LENGTH: 50.0 ft	WIDTH: 33.0 ft	EXPOSED PERIMETER:	166.0 ft

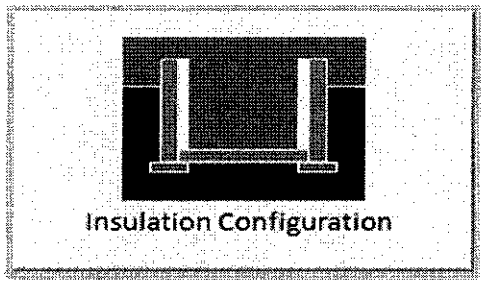
2012 OBC COMPLIANCE PACKAGE Component	Compliance Package A1	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20ci	21.12
Below Grade Slab Entire Surface >600mm below grade Minimum RSI (R)-Value	-	-
Edge of Below Grade Slab <600mm Below Grade Minimum RSI (R)-Value	10	10
Heated Slab or Slab <600mm below grade Minimum RSI (R)-Value	10	11.13
Windows and Sliding Glass Doors Maximum U-Value	0.28	-
Skylights Maximum U-Value	0.49	-
Space Heating Equipment Minimum AFUE	0.96	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

INDIVIDUAL BCIN: 19669
MICHAEL D'ROURKE

HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Hamilton	
Site Description		
Soil Conductivity:	Normal Conductivity: Dry Sand, Loam, Clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	15.2	 Insulation Configuration
Floor Width (m):	10.1	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.4	
Depth Below Grade (m):	1.52	
Window Area (m^2):	1.1	
Door Area (m^2):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):	**1603**	

TYPE: VALLEYCREEK2
LO# 90134

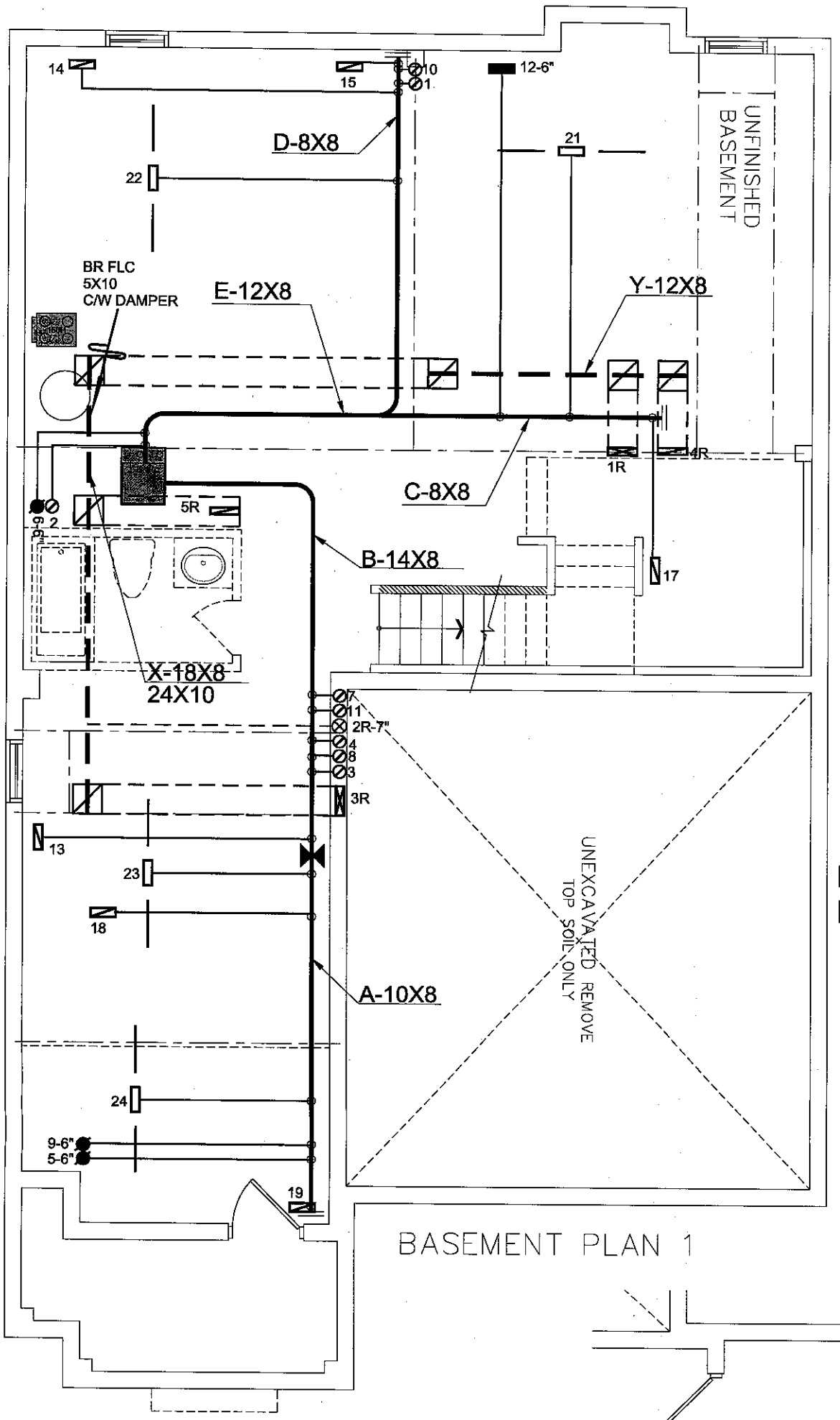
HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

Air Infiltration Residential Load Calculator

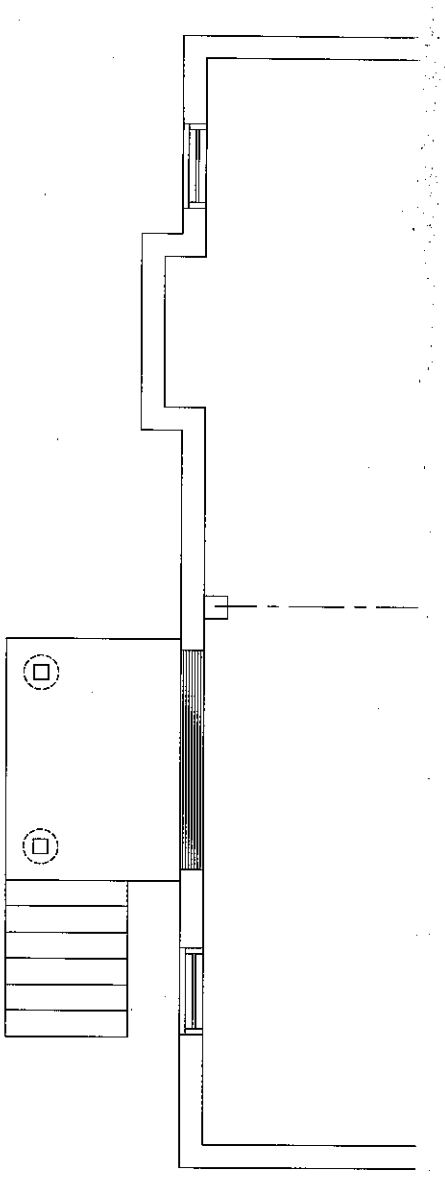
Supplemental Tool for CAN/CSA-F280

Weather Station Description					
Province:	Ontario				
Region:	Hamilton				
Weather Station Location:	Open flat terrain, grass				
Anemometer height (m):	10				
Local Shielding					
Building Site:	Suburban, forest				
Walls:	Heavy				
Flue:	Heavy				
Highest Ceiling Height (m):	7.62				
Building Configuration					
Type:	Detached				
Number of Stories:	Two				
Foundation:	Full				
House Volume (m^3):	955.2				
Air Leakage/Ventilation					
Air Tightness Type:	Present (1961-) (3.57 ACH)				
Custom BDT Data:	ELA @ 10 Pa.	1273.3 cm^2			
	3.57	ACH @ 50 Pa			
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust			
	37.5	37.5			
Flue Size					
Flue #:	#1	#2	#3	#4	
Diameter (mm):	0	0	0	0	
Natural Infiltration Rates					
Heating Air Leakage Rate (ACH/H):	**0.338**				
Cooling Air Leakage Rate (ACH/H):	**0.121**				

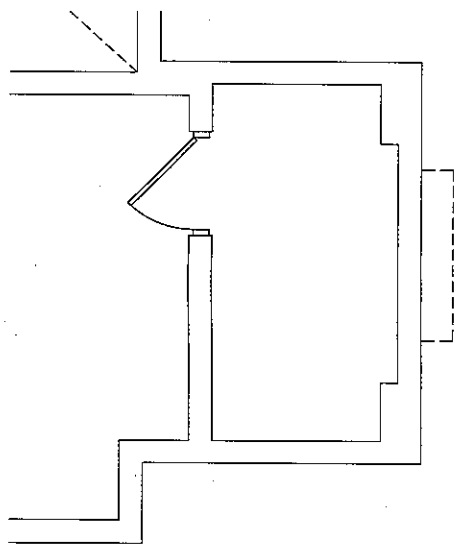
TYPE: VALLEYCREEK 2
LO# 90134



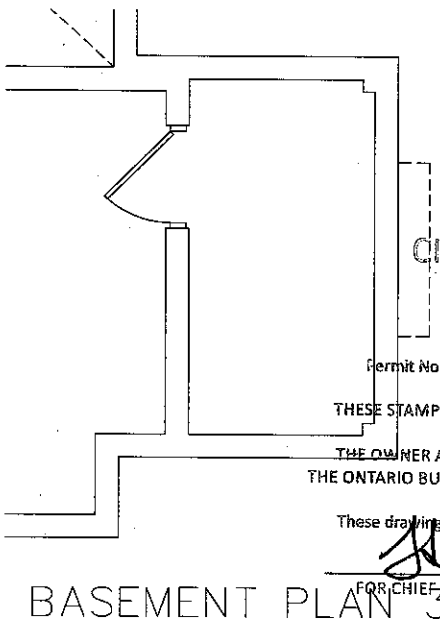
BASEMENT PLAN 1



PARTIAL BASEMENT PLAN FOR DECK CONDITION



BASEMENT PLAN 2



BASEMENT PLAN 3

CITY OF HAMILTON
Building Division
Permit No: 20-187704-SA

THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE

THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW

These drawings and/or specifications have been reviewed by

FOR CHIEF BUILDING OFFICIAL — DATE: SEPT 2021

I MICHAEL O'ROURKE HAVE REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12

PACKAGE A1

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER

No.	Description	Date
3.		
2.		
1.		

REVISIONS

Client
GREENPARK HOMES

Project Name
RUSSELL GARDENS PH 4
HAMILTON, ONTARIO

VALLEYCREEK 2 2612 sqft

HVAC DESIGNS LTD.
375 Finley Ave. Suite 202 - Ajax, Ontario
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
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Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

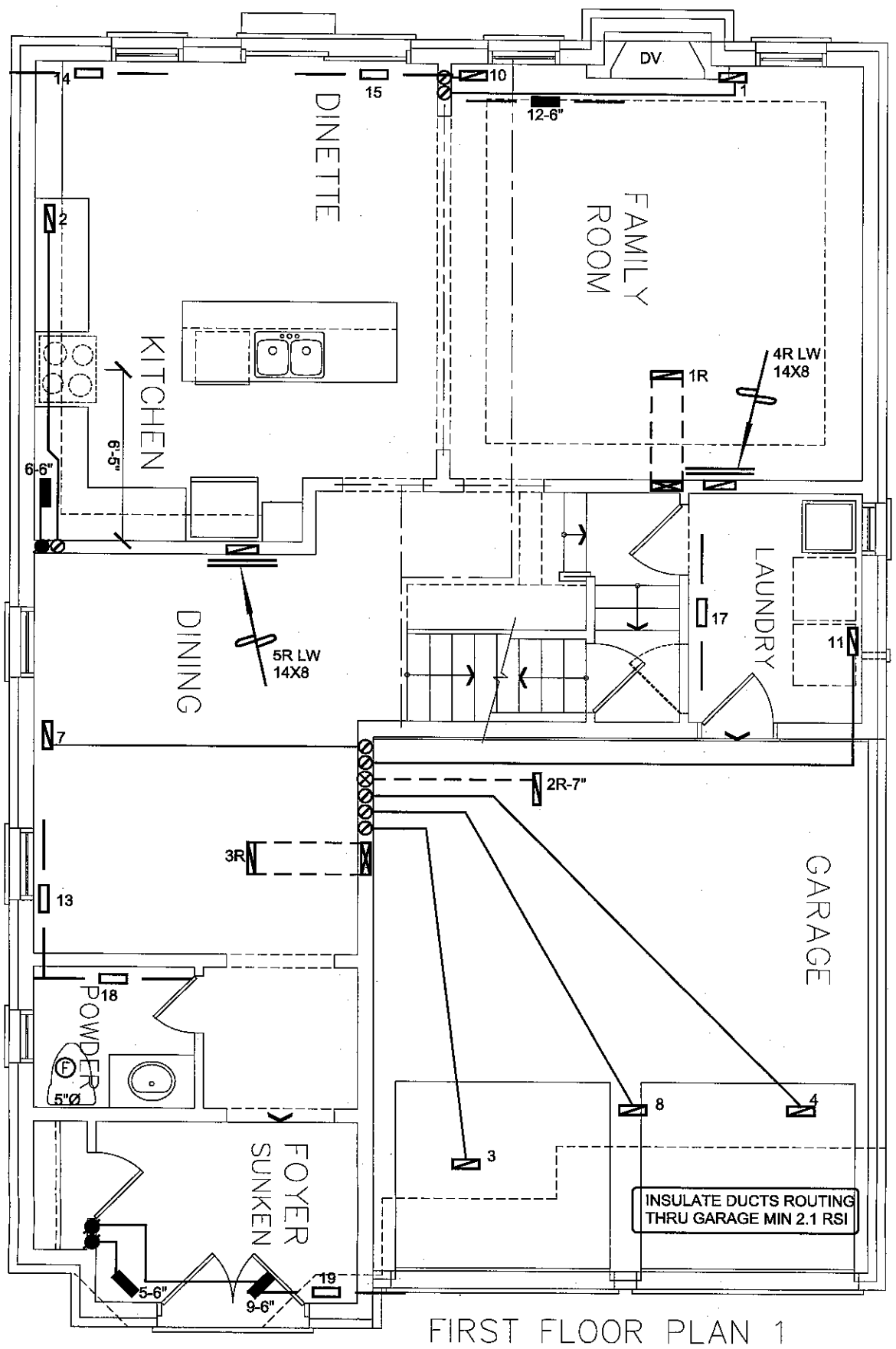
HEAT LOSS 46619 BTU/H	
UNIT DATA	
MAKE	GOODMAN
MODEL	GMEC960603BNA
INPUT	60 MBTU/H
OUTPUT	57.6 MBTU/H
COOLING	2.5 TONS
FAN SPEED	928 cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	11	3	3
1ST FLOOR	7	2	2
BASEMENT	4	1	0

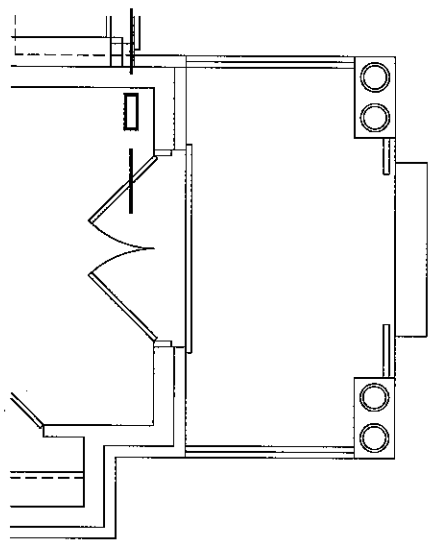
ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

Sheet Title
BASEMENT HEATING LAYOUT

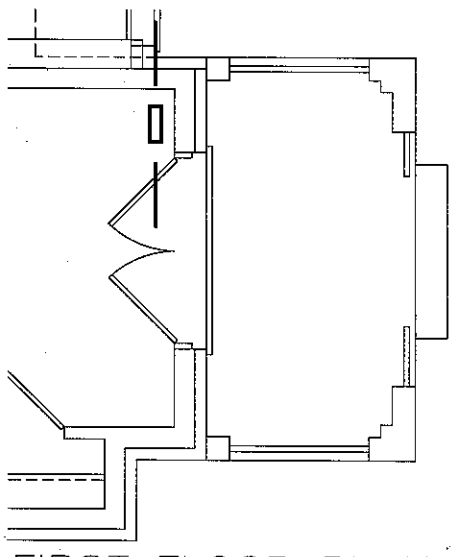
Date MAR/2021
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 90134



FIRST FLOOR PLAN 1



FIRST FLOOR PLAN 2



FIRST FLOOR PLAN 3

CITY OF HAMILTON
Building Division
Permit No. 21-187704-SD

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FOR CHIEF BUILDING OFFICIAL DATE

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Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12

PACKAGE A1

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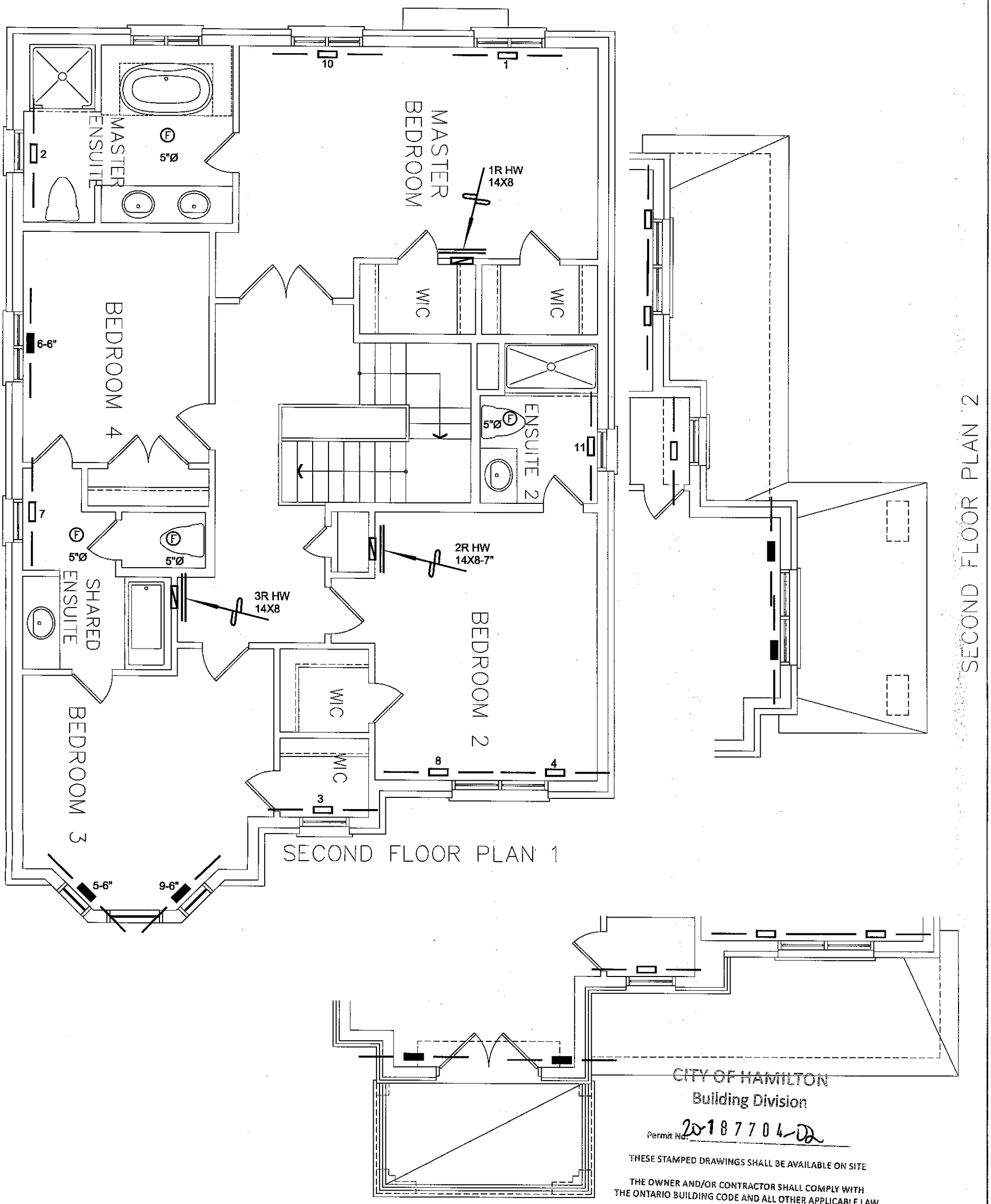
Sheet Title
FIRST FLOOR HEATING LAYOUT

Date MAR/2021
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 90134



CITY OF HAMILTON
Building Division
Permit No. 20-187704-DR

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FOR CHIEF BUILDING OFFICIAL
SEPT 20 21
DATE

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Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

SECOND FLOOR PLAN 3

CSA-F280-12
PACKAGE A1

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
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	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER

No.	Description	Date
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Project Name
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BCIN# 19669
LO# 90134